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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,560	11/26/2003	Gregory E. Grosch	022255.0010US1	1246
34284	7590	08/24/2005	EXAMINER	
ROBERT D. FISH RUTAN & TUCKER LLP 611 ANTON BLVD 14TH FLOOR COSTA MESA, CA 92626-1931			MITCHELL, KATHERINE W	
			ART UNIT	PAPER NUMBER
			3677	
DATE MAILED: 08/24/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/724,560	<b>Applicant(s)</b> GROSCH, GREGORY E.	
	<b>Examiner</b> Katherine W. Mitchell	<b>Art Unit</b> 3677	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on 08 July 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 1-4, 6, 7 and 10-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5, 8 and 9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/8/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)<br>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)<br>3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____<br>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)<br>6) <input type="checkbox"/> Other: _____ |
|---|--|

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Newly amended claims 1-4,6-7, and 10-19 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Applicant originally had independent claims directed to a threaded fastener embodiment with a substantially dry self curing adhesive and self-drilling tip. There was no generic claim linking the other embodiments. Examiner chose not to do a species restriction between species of fasteners with adhesive having various thread sizes, adhesives, and tips since the independent claim including adhesive was sufficiently narrow that the search was not considered burdensome.

Applicant has now amended the independent claim to eliminate the adhesive feature and require hi-low threads and a specific configuration of threaded and unthreaded portions.

2. Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 1-4, 6-7, and 10-19 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

### ***Drawings***

3. The drawing objections to all issues except the "nib" are moot and cancelled since the features are no longer in claims under consideration. The proposed change correcting the reference to the "nib" has been approved.

### ***Double Patenting***

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4. Since Claim 13 is no longer under consideration, the double patenting rejection is moot and cancelled.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Castor et al EP 601592 Derwent abstract and Figure, hereafter called Castor in view of Devine USP 6250866.

Re claim 5: Castor teaches a threaded fastener having a self-drilling tip (Pointed tip 3 is inherently at least somewhat self drilling), a shank 4, and a head 2. Threads 5 and 6 are of the Hi-Low thread design. Castor teaches that a dry, self-curing adhesive is disposed on the threads in a discontinuous manner as shown by "8" in the Figure and described in the abstract as a micro-encapsulated adhesive. Inevitably, a micro-encapsulated adhesive has small capsules of adhesive which are suspended in a carrier, and thus the adhesive itself is discontinuous. Since it hardens when the capsules rupture, it is considered dry and self-curing per applicant's clarification:

*Factory pre-applied adhesives are "dry to the touch" contain adhesives and/or sealants that remain dormant until the shearing action of engaging the fastener into a nut or preformed cavity causes them to cure.*

Castor's fastener's threads clearly stop short of the head, but the exact gap between the threads and the head is not specified as at least 1.4 mm unthreaded.

Devine teaches a self-drilling, self tapping fastener with a shank having Hi-Low threads, which further has a gap 56 on the shank that is unthreaded between the head and the threads. The gap has a length L5 of 0.365 inches, which is at least 1.4 mm, and Devine is specific that the unthreaded gap allows the screw to rotate freely in the opening of the material to be fastened, allowing the material to be compressed tightly against the substrate. Examiner further notes, however, that the exact size would be based upon the thickness of the material being fastened through which the fastener will drill.

Therefore, it would have been obvious to one of ordinary skill in the art, having the teachings of Castor and Devine before him at the time the invention was made, to modify Castor as taught by Devine to include an unthreaded portion of 1.4 mm or more between the threads and the head, in order to obtain a fastener which can rotate freely in the opening of the material to be fastened. One would have been motivated to make such a combination because the material being fastened could be compressed tightly against the substrate, as taught/suggested by Devine in col 4 lines 41-51.

Re claim 8: Castor's adhesive clearly is disposed about at least a portion of the threads but does not contact the head, per the Figure.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Castor in view of Devine as applied to claim 8 above, and further in view of Barth USP 4518294. As discussed above, Castor in view of Devine teach all the elements except a nib disposed on a surface of the head. Barth teaches nibs on the underside surface of a

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fastener head, which are used to rake up material as the underside of the fastener is driven in and thus increasing the stripping torque of the fastener.

Therefore, it would have been obvious to one of ordinary skill in the art, having the teachings of Castor in view of Devine, and Barth, before him at the time the invention was made, to modify Castor in view of Devine, as further taught by Barth, to include one or more ribs on the underside surface of a fastener head, which are used to rake up material as the underside of the fastener is driven in and thus increasing the stripping torque of the fastener, as taught/suggested by Barth in col 1 lines 34-54.

8. Claims 5,8, are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art in view of Devine USP 6250866.

Applicant states in the *Background of the Invention*:

*It is known that these problems can be reduced by pre-drilling or pre-forming a cavity into a FRP composite. In such instances the installer must then use a fastener with a major diameter (the measurement of the greatest outside diameter of the threads), that is only slightly greater than the diameter of cavity. Commonly used sheet metal screws for such applications often have sharp points and type "A" or "AB" threads. Such screws can also have a tapered point and type 25, "B" rolling or high-low threads. [H]igh-low threaded fasteners alternate one high and one low thread along the shank of the fastener. They were originally designed for connections in plastic material to reduce cracking, and are also somewhat effective in improving connections in wood and sheet metal...*

*It is known to factory pre-apply a dry adhesive coating or "patch" onto the threads of a fastener, before it is sold to an end-user. Factory pre-applied adhesives are "dry to the touch" contain adhesives and/or sealants that remain dormant until the shearing action of engaging the fastener into a nut or preformed cavity causes them to cure. There are numerous advantages to this approach, including improved resistance to pull-out, vibration. Surprisingly, while this method is widely known in the automotive,*

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*aerospace and furniture industries it has apparently never been applied to fasteners used in the assembly of FRP composite structures...*

Applicant is claiming the fastener, and the method of use is not given patentable weight as long as the structure is capable of meeting the intended usage, which the claimed fastener is. Applicant has admitted, per above, that it is known to have a fastener with a shank having hi-low threads, a self-drilling tip, and a dry, self-curing adhesive disposed on the threads in a discontinuous manner ("patch"). However, applicant did not disclose a gap between the threads and the head of at least 1.4 mm unthreaded. Devine teaches a self-drilling, self tapping fastener with a shank having Hi-Low threads, which further has a gap 56 on the shank that is unthreaded between the head and the threads. The gap has a length L5 of 0.365 inches, which is at least 1.4 mm, and Devine is specific that the unthreaded gap allows the screw to rotate freely in the opening of the material to be fastened, allowing the material to be compressed tightly against the substrate. Examiner further notes, however, that the exact size would be based upon the thickness of the material being fastened through which the fastener will drill.

Therefore, it would have been obvious to one of ordinary skill in the art, having the teachings of applicant's admitted prior art and Devine before him at the time the invention was made, to modify applicant's admitted prior art as taught by Devine to include an unthreaded portion of 1.4 mm or more between the threads and the head, in order to obtain a fastener which can to rotate freely in the opening of the material to be fastened. One would have been motivated to make such a combination because the

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material being fastened could be compressed tightly against the substrate, as taught/suggested by Devine in col 4 lines 41-51.

Re claim 8: Applicant's admitted prior art adhesive is disclosed as disposed onto the threads. As shown in Devine, the threads end well before the head, and thus the adhesive would not contact the head.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art in view of Devine as applied to claim 8 above, and further in view of Barth USP 4518294. As discussed above, Applicant's admitted prior art in view of Devine teach all the elements except a nib disposed on a surface of the head. Barth teaches nibs on the underside surface of a fastener head, which are used to rake up material as the underside of the fastener is driven in and thus increasing the stripping torque of the fastener.

Therefore, it would have been obvious to one of ordinary skill in the art, having the teachings of Applicant's admitted prior art in view of Devine, and Barth, before him at the time the invention was made, to modify Applicant's admitted prior art in view of Devine, as further taught by Barth, to include one or more nibs on the underside surface of a fastener head, which are used to rake up material as the underside of the fastener is driven in and thus increasing the stripping torque of the fastener, as taught/suggested by Barth in col 1 lines 34-54.

### ***Response to Arguments***

10. Applicant's arguments with respect to claims 5,8, and 9 have been considered but are moot in view of the new ground(s) of rejection.



***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

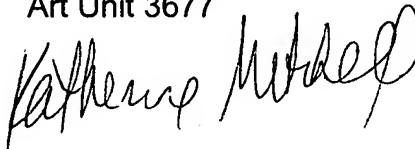
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine W. Mitchell whose telephone number is 571-272-7069. The examiner can normally be reached on Mon - Thurs 10 AM - 8 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. J. Swann can be reached on 571-272-7075. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Katherine W Mitchell  
Examiner  
Art Unit 3677

A handwritten signature in black ink, appearing to read "Katherine W Mitchell", written over the printed name.

Kwm  
8/11/2005

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Jul-08-05 11:54am

From-RUTAN & TUCKER LLP,

714-546-8035

T-833 P.13/13 F-476

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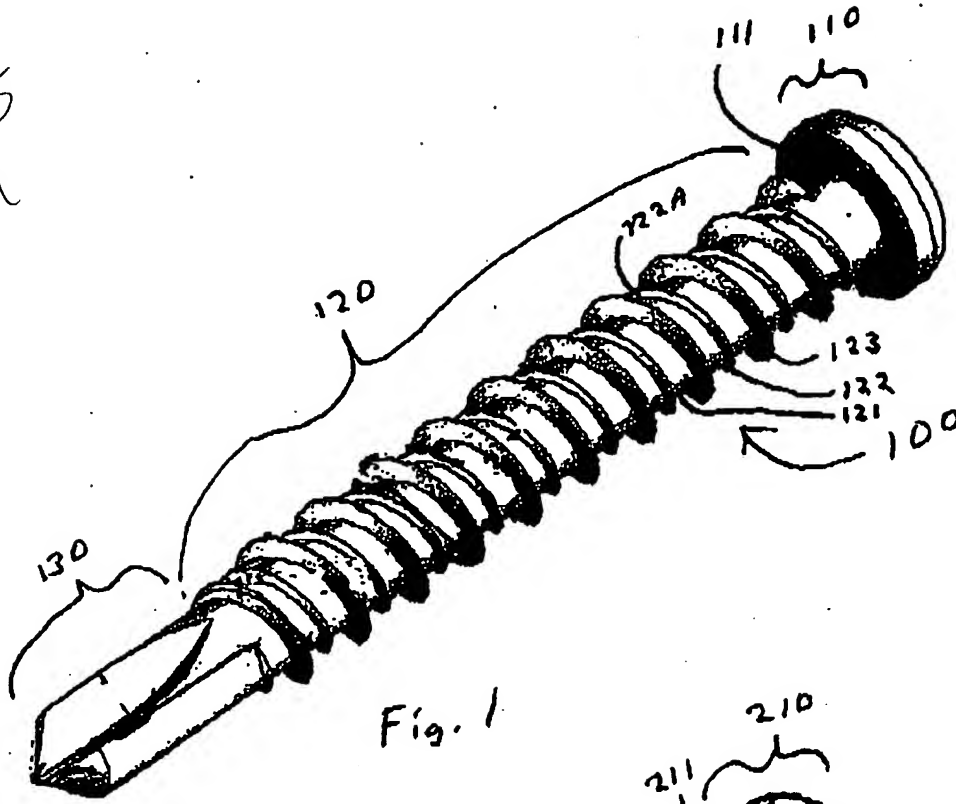


Fig. 1

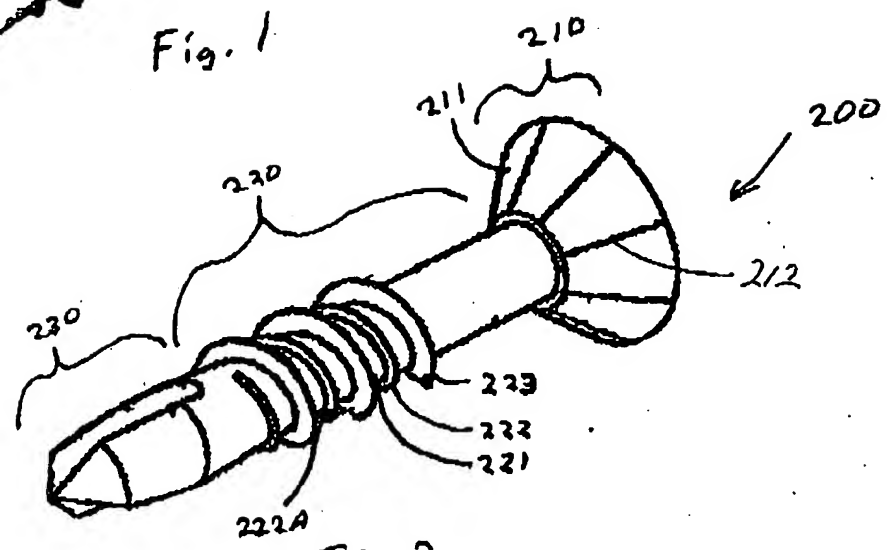


Fig. 2

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